CLAIMS

1. A process for measuring surface reflectance ($\hat{r}$) of an object of interest in a set of image data *(i)* said process comprising the steps of:

collect the set of image data *(i)* which contains the surface reflectance of the object of interest as well as additive noise caused by variations in illumination and atmospheric effects;

make an estimate of the additive noise *(a)* in the set of image data;

process the image data in a high pass filter to remove the estimate of additive noise *(a)* from the set of image data *(i)* and getting thereby a processed image set *(rm)*

Use a Discrete Cosign Transform (DCT) on the processed image set to estimate an amount of image signal lost due to atmospheric effects est *(rm);*

add the estimate of image signal lost to the processed image set to get a sum reflectance estimate; and

process the sum reflectance estimate with a multiplicative noise only algorithm to obtain thereby the surface reflectance ($\hat{r}$) of the object of interest.

2. A process, as defined in claim 1, wherein said collection step is performed using image sensors that detect image data in a form of pixel spectral vectors {x} and which output an image *(i)=rm* where r equals the surface reflectance of the object of interest and m is a multiplicative noise spectrum.

3. A process, as defined in claim 2, wherein there are N channels of pixel spectral vectors {x} that are rotated into a log *m* principle component (PC) space to produce a rotated ensemble set {y}.

4. A process, as defined in claim 3, wherein image formation of the object of interest is elicited by performing a Hadamard product of the rotated ensemble set {y}.